T-RCED-89-12

United States General Accounting Office

GAO Testimony

For Release
on Delivery
Expected at
9:30 a.m.
Friday
February 24,
1989

Environmental Problems at the Department of Energy's Nuclear Weapons Complex

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Before the
Subcommittee on Procurement and
Military Nuclear Systems
Committee on Armed Services
House of Representatives

GAO Form 160 (12/87)

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Mr. Chairman and Members of the Subcommittee:

We are pleased to provide our views on the environmental problems facing the Department of Energy. My testimony is based on a large body of work, over 50 reports and testimonies since 1981, on environmental, safety, and health aspects of DOE's nuclear weapons complex. As we have previously testified, the complex faces a wide variety of serious problem areas including modernization, safety, waste disposal, and environmental cleanup. The cost to address these problems is staggering--ranging up to $155 billion. Of all these problems, however, environmental problems may be the most costly and, in many ways, the most difficult to resolve.

As our work has shown, DOE faces two overall systemic environmental problems: cleaning up existing environmental contamination in groundwater and soil, and bringing its facility operations into full compliance with environmental laws. Both problems are formidable. Our estimates indicate it will cost $35 billion to $65 billion to clean up existing environmental contamination at the DOE nuclear weapons complex. Getting the necessary funds in a deficit era will be difficult. Further, in some instances new technologies for cleaning up the waste will have to be developed and, at some locations, specialized equipment and techniques will be needed to protect the workers involved in the cleanup. In the final analysis, some areas within the complex may

be irreversibly contaminated and thus require long-term institutional control. Bringing DOE facilities into full compliance with environmental laws will cost another $3 billion to $9 billion. These funds are needed to correct current waste management problems and build additional treatment and storage facilities. Finally, DOE is still in the process of characterizing and analyzing its environmental problems. Thus, additional problems may surface.

Because of the huge backlog of environmental problems facing DOE, we recommended, in September 1986, that DOE develop an environmental strategy which, among other things, would provide the Congress a comprehensive report on DOE plans to clean up existing contamination and bring its facilities into full compliance with environmental laws. In March 1987, we recognized a broader need and recommended an overall strategy for the weapons complex which, in addition to providing details for addressing the environmental problems, would also address modernization of the complex and safety problems. Recent DOE plans and reports have shed considerable light on the problems DOE faces; however, none of them taken individually or collectively provide an overall comprehensive environmental strategy. For example, DOE's recently issued modernization plan calls for additional spending of $81 billion over the next 21 years--$52 billion for modernization and $29 billion for environmental restoration. The plan, however, does not clearly define what environmental problems will be resolved

during the next 21 years. As a result, we still see a need for an overall environmental strategy as we did in 1986.

The remainder of my testimony provides a perspective on (1) the environmental problems DOE faces, (2) DOE efforts to develop an overall environmental strategy, and (3) our views on DOE's fiscal year 1990 budget.

DOE'S ENVIRONMENTAL PROBLEMS

In making nuclear weapons, enormous amounts of hazardous and radioactive waste are generated. Historically, this waste was disposed of by methods that allowed the waste to enter the environment. Some general examples of the waste disposal practices used throughout the complex include shallow land burial for solid wastes, and direct discharge of liquid wastes into surface impoundments, trenches, and seepage basins. Compounding DOE's environmental problems were storage tanks that leaked and accidental spills from normal operations.

Our work over the past several years has described a variety of serious unresolved environmental problems. Specifically, we have called attention to:

-- Leakage from high-level radioactive waste tanks. Over 50 of the 149 single-shell tanks at Hanford, Washington, have

leaked or are suspected of leaking high-level radioactive waste into the environment. Some of these leaks were detected more than 20 years ago.

-- Shallow burial of transuranic waste.[1] DOE has a multi-billion dollar effort to put transuranic waste in a geological repository in New Mexico. However, DOE's plans only call for sending about 20 percent of its transuranic waste to the repository. DOE has made no commitment regarding the permanent disposal of the remaining 80 percent, most of which is in shallow burial grounds at various DOE facilities around the country.

-- Groundwater contamination at numerous facilities throughout the complex. As a result of past disposal practices, the groundwater at many DOE facilities has become contaminated with hazardous and/or radioactive material, some at levels hundreds to thousands of times the drinking water standards. Some contaminated groundwater has migrated off-site.

-- Soil contamination at facilities throughout the complex. As a result of past practices, soil has become contaminated with radioactive and/or hazardous material. At some

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[1]Transuranic wastes are man-made radioactive materials that include plutonium and are generally long-lived and toxic.

locations, the radioactive and/or hazardous material has migrated off-site.

-- Inactive waste sites. DOE has identified over 3,000 inactive waste sites throughout the complex. Many of these sites contain a variety of toxic, hazardous, and/or radioactive material.

-- Noncompliance with environmental laws. DOE has had difficulty in maintaining compliance with various environmental laws. Most of the sites in the weapons complex need corrective actions under various air, water, or solid-waste statutory requirements.

Several DOE documents have been furnished to the Congress in the last 6 months which recognize the severity of the environmental problems within the complex. In September 1988, DOE issued a preliminary environmental summary report which ranked major environmental problems in the complex.[2] In December 1988, DOE issued a report detailing environmental health and safety needs of all its facilities, including those of the complex.[3] And finally,

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[2]Environmental Survey Preliminary Summary Report of the Defense Production Facilities (Sept. 1988).

[3]Environment, Safety, and Health Needs of the U.S. Department of Energy (Dec. 1988).

in January 1988, DOE issued a modernization plan,[4] mandated by the Congress.[5] Among other things this plan was to include the actions necessary to ensure the complex operates in an environmentally acceptable manner.

The plan and reports, in our view, reflect the study phase that DOE is currently in. In this regard, DOE, to a large degree, is studying the extent and severity of the contamination to better characterize the nature of its environmental problems. DOE has not developed a detailed plan for resolving the environmental problems of the complex.

DOE'S ENVIRONMENTAL PLAN STILL EVOLVING

As a result of the recently issued modernization plan and DOE reports, we know considerably more about the environmental problems facing DOE now than we did a year ago. In this regard, we have cost estimates to approximate the formidable size of the challenge ahead. About $35 billion to $65 billion is going to be needed to clean up environmental contamination, and another $3 billion to $9 billion is needed to bring DOE's operations into compliance with

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[4]United States Department of Energy Nuclear Weapons Complex Modernization Report (Report to the Congress by the President, Dec. 1988).

[5]National Defense Authorization Act for Fiscal Year 1988/1989 (P.L. 100-180, Dec. 4, 1987).

environmental laws. The specifics, however, regarding how these funds will be spent, what technologies will be needed to clean up individual sites, and to what levels will DOE sites be cleaned up, are still evolving.

DOE's preliminary summary report contains the preliminary results of DOE's environmental surveys. These surveys were initiated in late 1985 to identify environmental problems within the complex. The report presents information on environmental problems at all DOE defense sites and ranks 155 environmental problems. This report, however, does not lay out plans for resolving these problems.

DOE's environmental, safety, and health needs report provides more detailed information on the cost to clean up DOE facilities and bring them into compliance with environmental laws. The report, for each site in the complex, provides a listing of current or proposed cleanup and compliance projects as well as cost estimates for each project. However, a large percentage of the total estimated cost cited as needed in the report is not tied to specific long-term cleanup projects. Further, the report does not lay out year-by-year milestones and schedules so that progress can be measured.

The modernization report lays out DOE's view of what facilities will be needed in 2010 to meet production needs.

Accordingly, the plan called for new facilities as well as upgrades to existing facilities. Some DOE facilities will be phased out or relocated by 2010. The plan does not clearly define what environmental problems will be resolved during the same time frame. The plan does not show key decisions on the extent of environmental cleanup or which sites get cleaned up first.

DOE's modernization plan and the two aforementioned reports neither individually or collectively represent detailed plans for resolving the environmental problems of the complex. Specific long-range plans are needed so that the Congress can judge the pace and direction of DOE's cleanup program. Well-conceived plans are also needed to avoid or minimize problems that have occurred in the Superfund program administered by the Environmental Protection Agency (EPA). The problems include cost increases when the cleanup actually begins, inadequate contractor performance, and the lengthy process for evaluating cleanup alternatives. Only about 34 of 800 superfund sites identified by EPA have been cleaned up.

Recently proposed legislation to establish a national commission on DOE environmental remediation activities (H.R. 765) could play an important role in assisting DOE in its development of long-range plans. The commission, among other things, would examine DOE's management structure, assess technological capabilities to clean up contamination, and determine the adequacy of existing data on environmental contamination. As proposed, it

would also recommend a process for setting national priorities for environmental remediation activities at DOE's nuclear facilities. Accordingly, we believe the commission could help clarify cleanup issues such as the adequacy of DOE's management structure and help form the basis for a national consensus in developing a comprehensive approach to address DOE's environmental problems. The commission could also be helpful in assessing the extent to which DOE sites can be cleaned up.

DOE'S FISCAL YEAR 1990 BUDGET FOR ENVIRONMENTAL ACTIVITIES

Next, I would like to briefly discuss DOE's fiscal year 1990 budget request, as amended by the new administration. Of the $9.4 billion now requested for the complex, approximately $1.1 billion is earmarked for correcting environmental problems. According to DOE, this level of support represents the first step toward cleaning up the complex and bringing it into compliance with environmental laws.

The $1.1 billion for addressing environmental problems within the complex represents a $408 million, or 57 percent, increase in funding over fiscal year 1989 levels. More specifically, funding for activities to ensure that DOE operations comply with environmental laws has been increased by $166 million to $725 million. Funding for environmental cleanup of existing

contamination has been increased by $242 million to $401 million.[6] These funding levels include the additional funds recently proposed by the new administration. While DOE's request represents increased funding for correcting environmental problems, given the magnitude of the environmental problems and the enormity of the cost to correct them, the fiscal year 1990 funds are only a small down payment on resolving them. This is particularly true in the environmental cleanup area, where DOE plans to spend $401 million in fiscal year 1990 on a problem that may cost over $60 billion.

It is important to note that the level of funding requested for fiscal year 1990 reflects the fact that DOE is still in the process of determining the extent of the environmental contamination. According to the latest DOE budget information, about 60 percent of the funds requested for environmental cleanup are for studies to assess and characterize the environmental problems at DOE's sites. For example, two of DOE's sites with major environmental problems--Hanford Reservation in Washington State and Idaho National Engineering Laboratory in Idaho--have almost all of their environmental cleanup funding slated for studies. According to DOE officials, these studies are a prerequisite to developing long-range cleanup plans with state governments and EPA.

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[6]About $24 million of these funds will be used for decontamination activities at DOE facilities.

Key decisions, made by DOE together with state governments and EPA, on the level of cleanup at many of these facilities may be years away. According to DOE officials, establishing cleanup standards pursuant to environmental laws for many facilities may take as long as 5 to 7 years. In addition, in some cases, new techniques and technologies will have to be developed and implemented to address unique cleanup situations existing at many of the sites. Some cleanup is being accomplished today, but the bulk of the cleanup effort is still years away. Cleanup expenditures will likely increase dramatically in the next few years to fund large-scale cleanup projects. At this time, however, we would not recommend dramatic increases over and above the DOE request for fiscal year 1990. DOE is still, to a large extent, characterizing the nature of their environmental problems and developing long-range plans. As stated earlier, such plans are important to ensure that effective remedies to environmental prcblems are funded. Once more detailed plans are available, the Congress will be in a better position to judge the pace and direction of DOE's cleanup programs.

SUMMARY

In summary, the environmental situation at the DOE complex has important ramifications for the nation.

-- From a budgetary perspective, estimates to clean up the complex range from $35 billion to $65 billion, with another $3 billion to $9 billion needed to bring DOE facility operations into full compliance with environmental laws. The budget proposal before you is only a very small down payment on this enormous bill, and long-range plans for addressing these problems are still evolving.

-- From an environmental perspective, widespread contamination exists in the groundwater and soil at most DOE sites. More ominously, the environmental contamination has spread off-site at some facilities where it could potentially affect the public in surrounding communities. Moreover, some sites may be irreversibly contaminated, and DOE may have to place them in long-term institutional care.

Today, we have a better understanding of the environmental problems facing the complex. However, DOE is still, to a large degree, in the study phase and is continuing to develop information on the extent of the problems and possible solutions. Although environmental solutions will be costly and difficult, specific long-range plans are needed so that the Congress can judge the pace and direction of DOE's cleanup program. Well-conceived plans are also needed to avoid problems that have occurred in EPA's Superfund program.

While all the problems are not yet completely understood, the national debate can now begin to find solutions. Because of the enormous costs associated with the solutions, the Congress will be making decisions about the complex for many years.

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Thank you, that concludes my testimony. We will be happy to answer any questions.

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